UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

August 31, 2015

Mr. John C. Arbuthnot, P.E.
Senior Remediation Manager
Clean Harbors Environmental Services, Inc.
On Behalf of Baton Rouge Disposal, LLC
13351 Scenic Highway
Baton Rouge, LA 70807-1021

Reference: Devil's Swamp Lake Superfund Site, AI# 86800,
East Baton Rouge Parish, LA, EPA Id #LAD981155872,
Tier 2 Remedial Investigation –
Draft Tier 2 RI Report Comments to Responses
Transmitted by email on July 17, 2015

Dear Mr. Arbuthnot:

As a follow up from the email dated August 11, 2015, enclosed are the suggested changes to the responses to comments dated July 2015 for the Devil's Swamp Lake Draft Tier 2 RI and out transmittal email of August 11, 2015.

Again, we are available to further discuss and clarify any questions and meet with Clean Harbors, Conestoga-Rovers & Associates and the Louisiana Department of Environmental Quality as needed.

If you have any question, please contact me at your earliest convenience.

Sincerely,

Bartolome J Cañellas

Bartolome J Canellas (6SF-RL)
Remedial Project Manager

Enclosures:
Transmittal email to John C Arburhnot dated August 11, 2015
File: Email 08_11_2015 transmittal DSL Tier 2 RI Comments to Responses – Memo Style.pdf
DSL Draft Tier 2 RI suggested changes to response to comments provided on July 17, 2015
File: EPA suggested changes DSL HHRA response to comments.pdf

cc:
LDEQ Agency Interest #86800
Keith Horn, LDEQ.
Louisiana Department of Environmental Quality
Remediation Services Division
P. O. Box 4314
Baton Rouge, LA 70821-4314

Mr. Press Campbell
Conestoga-Rovers & Associates (CRA)
5551 Corporate Boulevard, Suite 200,
Baton Rouge, LA, 70808,
Tel (225) 292-9007

Mark Paddack
EA Engineering, Science, and Technology, Inc.
405 S. Highway 121, Suite C-100
Lewisville, TX 75067

EPA Site File LAD981155872

Canellas, Bart

From: Canellas, Bart
Sent: Tuesday, August 11, 2015 2:25 PM
To: John C Arburhnot (DSL CH)
Cc: Keith Horn (DSL Petro 2011); Pressley Campbell DSL CRA; Darcie Olexia; Mark Paddack
Subject: EPA and LDEQ review of response to draft Tier 2 RI comments - approved as noted on this email and the attached tables
Attachments: EPA suggested changes DSL HHRA response to comments.pdf

The EPA and the LDEQ risk assessors and project managers have reviewed the proposed responses to the draft Tier 2 RI Report submitted on July 2015. We accept the responses present with the following two changes:

#1 Increase the RME meal frequency to 48 and
#2 since there are few crawfish in the lake, change the RME fish consumption rates to:

Bass 45.36 g/meal adult	8.51 g/meal child
Catfish 177 g/meal adult	33 g/meal child
Crawfish 5 g/meal adult	1 g/meal child

This adds together to around 227 g/meal, close to the 8 oz meal.

Last you have to add all those risk values that compose a meal (bass, catfish, crawfish).

The attached file (Tables 9-9, 9-16 and 9-17) show how we see the risk tables changing. These results bring us closer to the findings of the state reassessment for the fishing advisory.

Please proceed to implement the changes to promptly finalize the Tier 2 RI Report and initiate plans for the start of Feasibility Study (FS).

If you have any question, please contact me at your earliest convenience.

Bartolome J Canellas (6SF-RL)
Remedial Project Manager
LA/NM/OK Remedial Section
EPA Region 6 - Superfund Program
Office: (214) 665-6662

TABLE 9-9

ASSUMPTIONS FOR A RECREATIONAL USER INGESTING FISH OR CRAWFISH
TIER 2 REMEDIAL INVESTIGATION
DEVIL'S SWAMP LAKE SITE
EAST BATON ROUGE PARISH, LOUISIANA

48 MEALS/YEAR

Medium: Fish/Crawfish
Exposure Medium: Fish/Crawfish Tissue
Receptor Population: Recreational User
Receptor Age: Child and Adult

Exposure Route	*Parameter Code*	*Parameter Definition*	*Units*	*Central Tendency Exposure (CTE) Value*	*CTE Rationale/ Reference*	*Reasonable Maximum Exposure (RME) Value*	*RME Rationale/ Reference*	*Intake Equation/ Model Name*
Ingestion	$C_{fish/cf}$	Chemical Concentration in Fish/Crawfish	mg/kg	(1)	(1)	(1)	(1)	Chronic Daily Intake (CDI) (mg/kg-day) =
	IR	Ingestion Rate of Fish or Crawfish	g/meal	species-specific	CRA, 2012 (2)	species-specific	CRA, 2012 (2)	$C_{fish/cf}$ x IR x CF x FI x CR x MF x ED x 1/BW x 1/AT
	CF	Conversion Factor	kg/g	1.00E-03	--	1.00E-03	--	
	MF	Meal Frequency	meals/year	12	CRA, 2012 (3)	24	CRA, 2012 (3)	
	FI	Contaminated Fraction Ingested	unitless	0.5	USEPA (1999)	0.5	USEPA (1999)	
	CR	Cooking Reduction Factor	unitless	0.5	LDEQ, 2011; USEPA, 2000 (4)	0.7	LDEQ, 2011; USEPA, 2000 (4)	
	ED - Child	Exposure Duration	years	4	Assumption	4	Assumption	
	ED - Adult	Exposure Duration	years	3	USEPA, 2004	20	USEPA, 2014 (5)	
	BW - Child	Body Weight	kg	15	USEPA, 2014	15	USEPA, 2014	
	BW - Adult	Body Weight	kg	80	USEPA, 2014	80	USEPA, 2014	
	AT-C	Averaging Time (cancer)	days	25,550	USEPA, 1989	25,550	USEPA, 1989	
	AT-N	Averaging Time (non-cancer)	days	2,555	USEPA, 1989	8,760	USEPA, 1989	

Notes:

(1) Chemical concentrations in fish are Site-specific.

(2) Fish consumption rates from CRA (2012) are:

	Adult (g/meal)		Child (2 to 6-yrs old; g/meal)	
Species	CTE	RME	CTE	RME
Largemouth Bass	45.36	45.36	8.51	8.51
Channel Catfish	90.72	~~90.72~~ 177	17.02	~~17.02~~ 33
Crawfish	90.72	~~90.72~~ 5	17.02	~~17.02~~ 1

(3) For RME, the exposure frequency assumes that child (older than 2 years) and adult consume 2 meals per month for 12 months of the year (2 meals/month x 12 months/year for a total of 24 meals per year); for CTE the total rate is 12 meals per year; based on local observations.

(4) Supported by multiple literature sources (Zabik and Zabik, 1995; Wilson et al., 1998; and Schecter et al., 1998).

(5) LDEQ (2011) recommends an exposure duration of 30 years. These values represent years spent ingesting fish as a child (years 0 to 2 excluded) and as an adult.

References:

CRA, 2012: Final Tier 2 Remedial Investigation Work Plan, 4.2.2 Exposure Assessment, Conestoga-Rovers & Associates, June 2012.

LDEQ, 2011: Protocol for Issuing Public Health Advisories for Chemical Contaminants in Recreationally Caught Fish and Shellfish, May 2011 (revised February 2012).

Schecter, A., M. Dellarco, O. Papke, and J. Olson, 1998: A Comparison of Dioxins, Dibenzofurans, and Coplanar PCBs in Uncooked and Broiled Ground Beef, Catfish, and Bacon. Chemosphere 37:1723-1730.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A OERR. EPA/540-1-89-002, December 1989.

USEPA, 1999: Human Health Risk Assessment, Devil's Swamp, December 1999.

USEPA, 2000: Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories: Vol 1-3. (3rd Ed.) 823-B-00-008, Office of Water, U.S. Environmental Protection Agency, Washington DC, November 2000.

USEPA, 2004: RAGs Volume 1, Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment, EPA/540/R/99/005, July 2004.

USEPA, 2014: Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, OSWER Directive 9200.1-120, February 2014.

Wilson, D.W., N.M. Shear, D.J. Paustenbach, and P.S. Price, 1998: The Effects of Cooking Practices on the Concentration of DDT and PCB Compounds in the Edible Tissue of Fish. J. Exp. Anal. Environ. Epidem. 8:423-440.

Zabik, M.E., and M.J. Zabik, 1995: Tetrachlorodibenzo-p-dioxin Residue Reduction by Cooking/Processing of Fish Fillets Harvested from the Great Lakes. Bull. Environ. Contam. Toxicol. 55:264-269.

TWO CHANGES: MEAL FREQUENCY 48

RME CONSUMPTION RATES (g/meal)

BASS	45.36	ADULT	8.51	CHILD
CATFISH	177	ADULT	33	CHILD
CRAWFISH	5	ADULT	1	CHILD

TABLE 9-16

REASONABLE MAXIMUM EXPOSURE CANCER RISKS AND NON-CANCER HAZARDS FOR CURRENT/FUTURE RECREATIONAL USER EXPOSED TO TOTAL PCBs IN FISH AND CRAWFISH OVER ENTIRE SITE
TIER 2 REMEDIAL INVESTIGATION
DEVIL'S SWAMP LAKE SITE
EAST BATON ROUGE PARISH, LOUISIANA

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult and Child (2 to 6 yrs old)

Medium	*Exposure Medium*	*Exposure Point*	*Exposure Route*	*Constituents of Concern* [1,2]	*EPC* [3,4]		*Cancer Risk Calculations*					*Non-Cancer Hazard Calculations*				
					Value	*Units*	*Intake (CDI)*		*CSF*		*Cancer Risk*	*Intake (CDI)*		*RfD*		*Hazard Quotient*
							Value	*Units*	*Value*	*Units*		*Value*	*Units*	*Value*	*Units*	
Biological Tissue	Bass	Filet	Ingestion	Total PCB - High	6.7E-01	mg/kg	3.0E-06	mg/kg-d	2.0E+00	$(mg/kg\text{-}d)^{-1}$	6.E-06	8.8E-06	mg/kg-d	2.0E-05	mg/kg-d	4.E-01
	Catfish	Filet	Ingestion	Total PCB - High	1.1E+00	mg/kg	9.6E-06	mg/kg-d	2.0E+00	$(mg/kg\text{-}d)^{-1}$	2.E-05	2.8E-05	mg/kg-d	2.0E-05	mg/kg-d	1.E+00
	Crawfish	Tail	Ingestion	Total PCB - High	3.7E-02	mg/kg	3.3E-07	mg/kg-d	2.0E+00	$(mg/kg\text{-}d)^{-1}$	7.E-07	9.6E-07	mg/kg-d	2.0E-05	mg/kg-d	5.E-02

TOTAL 8.9E-5

TOTAL 6.48

Notes:

CSF = Cancer Slope Factor
EPC = Exposure Point Concentration - 95% Upper Confidence Limit on the geometric mean calculated via ProUCL.
PCB = Polychlorinated Biphenyl
RfD = Reference Dose
mg/kg = milligrams per kilogram
mg/kg-d = milligrams per kilogram per day
[1]Total PCB - High = PCBs assessed using the high risk USEPA toxicity category.
[2]Total PCB are based on the combined results for individual congeners.
[3]Non-detects were treated as 1/2 detection limit and were included in EPC calculations.
[4]Crawfish EPC uses the maximum detected value.

6E-06 1.20E-05 1.75E-05 0.87
3.84E-05 7.67E-05 1.12E-04 5.60
3.69E-08 7.38E-08 1.08E-07 0.01

TABLE 9-17

REASONABLE MAXIMUM EXPOSURE CANCER RISKS AND NON-CANCER HAZARDS FOR CURRENT/FUTURE RECREATIONAL USER EXPOSED TO DIOXIN-LIKE PCBs OVER ENTIRE SITE
TIER 2 REMEDIAL INVESTIGATION
DEVIL'S SWAMP LAKE SITE
EAST BATON ROUGE PARISH, LOUISIANA

Scenario Timeframe: Current/Future
Receptor Population: Recreational User
Receptor Age: Adult and Child (2 to 6 yrs old)

Medium	*Exposure Medium*	*Exposure Point*	*Exposure Route*	*Constituents of Concern*	*EPC*[1]		*Cancer Risk Calculations*					*Non-Cancer Hazard Calculations*				
					TEQ	*Units*	*Intake (CDI)*		*CSF*		*Cancer Risk*	*Intake (CDI)*		*RfD*		*Hazard Quotient*
							Value	*Units*	*Value*	*Units*		*Value*	*Units*	*Value*	*Units*	
Biological Tissue	Bass	Filet	Ingestion	DLPCBs	2.2E-05	mg/kg	9.8E-11	mg/kg-d	1.3E+05	$(mg/kg\text{-}d)^{-1}$	1.E-05	2.9E-10	mg/kg-d	7.0E-10	mg/kg-d	4.E-01
	Catfish	Filet	Ingestion	DLPCBs	2.2E-05	mg/kg	2.0E-10	mg/kg-d	1.3E+05	$(mg/kg\text{-}d)^{-1}$	3.E-05	5.8E-10	mg/kg-d	7.0E-10	mg/kg-d	8.E-01
	Crawfish	Tail	Ingestion	DLPCBs	1.6E-07	mg/kg	1.4E-12	mg/kg-d	1.3E+05	$(mg/kg\text{-}d)^{-1}$	2.E-07	4.2E-12	mg/kg-d	7.0E-10	mg/kg-d	6.E-03

TOTAL 1.24E-4

TOTAL 4.02

Notes:
DLPCBs = Dioxin-like PCBs
CSF = Cancer Slope Factor
EPC = Exposure Point Concentration - 95% Upper Confidence Limit on the geometric mean calculated via ProUCL.
PCB = Polychlorinated Biphenyl
RfD = Reference Dose
TEQ = Total of PCB TCDD-Equivalents
mg/kg = milligrams per kilogram
mg/kg-d = milligrams per kilogram per day
[1]Non-detects were treated as 1/2 detection limit and were included in EPC calculations.

5.54E-10
2.24E-9
4.65E-13

1.97E-10
7.67E-10
1.63E-13

2.56E-5
9.98E-5
2.67E-8

.82
3.20
.001